

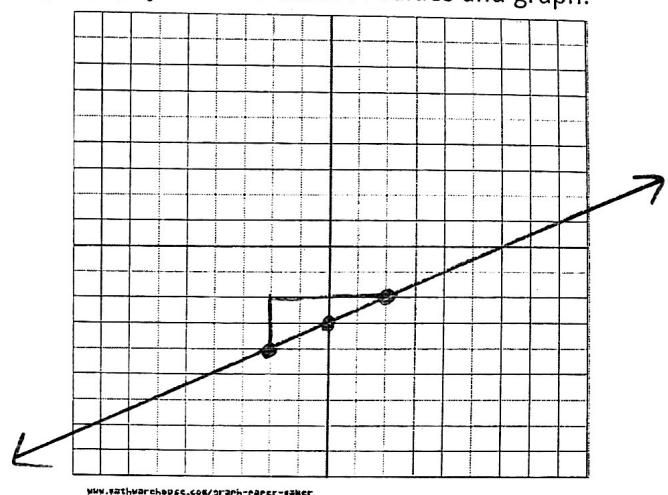
Key

### Determining Slope and y-intercept from an equation: Homework

Given the function  $y = \frac{1}{2}x + 3$  and domain values  $\{-2, 0, 2\}$ . Make a table of values and graph.

x	y
-2	-4
0	-3
2	-2

$\left. \begin{array}{l} \\ \\ \end{array} \right\} \begin{array}{l} \frac{1}{2}(-2) + 3 \\ \frac{1}{2}(0) + 3 \\ \frac{1}{2}(2) + 3 \end{array}$



1.) Using your table of values, determine the constant rate of change (slope).

$$\frac{\Delta y}{\Delta x} = \frac{1}{2}$$

2.) Using your graph, count the slope.

$$\frac{\Delta y}{\Delta x} = \frac{2}{4} = \frac{1}{2}$$

3.) Choose two points on the line and calculate the slope.

$(-2, -4)$   $(0, -3)$

$$\frac{-3 - (-4)}{0 - (-2)} = \frac{1}{2}$$

4.) What do you notice about the relationship of the original equation,  $y = \frac{1}{2}x + 3$  and the slope that we just found? The slope is the coefficient of x

5.) What is the y-intercept? -3

6.) What do you notice about the relationship between the original equation,  $y = \frac{1}{2}x + 3$  and the Y-INTERCEPT that we just found? The y-intercept is the constant

7.) Recall that  $y = mx + b$  where  $m =$  slope and  $b =$  y-intercept

$$y = mx + b$$

↑ slope
↑ y-intercept

Identify the slope (m) and y-intercept (b) of the following equations.

8.)  $y = 5x + 0$   
 $m = 5$   
 $b = 0$

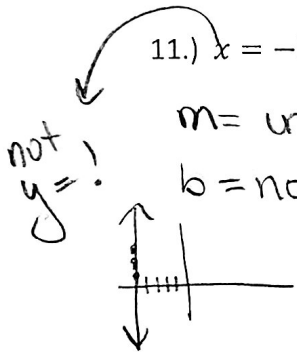
9.)  $y = 9 + 2x$   
 $m = -2$   
 $b = 9$

10.)  $y = \frac{1}{3}x^4 + 2$   
 non-linear!

11.)  $x = -5$   
 $m = \text{undefined}$   
 $b = \text{none}$

12.)  $y = -8x + 1$   
 $m = -8$   
 $b = 1$

13.)  $y = 1 + 3x$   
 $m = -3$   
 $b = 1$



14.)  $y = 2 + \frac{1}{3}x$   
 $m = \frac{1}{3}$   
 $b = 2$

15.)  $y = -7 + 0x$   
 $m = 0$   
 $b = -7$

16.)  $y = |x + 4|$   
 $m = 1$   
 $b = -4$

17.)  $y = 4x^2 - 8$   
 non-linear!

18.)  $y = \frac{2}{3}x + 1$   
 $m = \frac{2}{3}$   
 $b = 1$

19.)  $y = -x + 3$   
 $m = -1$   
 $b = 3$